

**ABSTRACT OF THE DISCLOSURE**

Systems and methods are provided for providing communication between an ATM layer device and multiple multi-channel PHY layer devices, which increase the number of multi-channel PHY layer ports supported by the ATM layer device. In general, one such system comprises an ATM layer device that supports a plurality of ATM communication channels in which each of the plurality of ATM communications channels correspond to a first class of service or a second class of service, a plurality of physical layer devices each having a first channel port associated with the first class of service and a second channel port associated with the second class of service, and a local interface in communication with the ATM layer device and the plurality of physical layer devices for establishing a plurality of channel connections between each of the plurality of ATM communication channels and the first channel port and the second channel port in each of the plurality of physical layer devices, the local interface having a plurality of addresses. In the system, each of the plurality of channel connections associated with the plurality of second channel ports is via one of the plurality of addresses and at least two of the plurality of channel connections associated with the plurality of first channel ports is via no more than one of the plurality of addresses. In this manner, the system increases the number of physical layer devices communicating with the ATM layer.